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## SEQUENCE LISTING

<110> Wing Dr., Sung L.  
 Tolan Dr., Jeffrey S.

<120> Xylanases with Improved Performance in Feed Pelletting Applications

<130> 0888161US

<140>  
 <141>

<150> 60/108,504  
 <151> 1998-11-16

<160> 61

<170> PatentIn Ver. 2.1

<210> 1  
 <211> 184  
 <212> PRT  
 <213> Aspergillus niger

<400> 1  
 Ser Ala Gly Ile Asn Tyr Val Gln Asn Tyr Asn Gly Asn Leu Gly Asp  
 1 5 10 15  
 Phe Thr Tyr Asp Glu Ser Ala Gly Thr Phe Ser Met Tyr Trp Glu Asp  
 20 25 30  
 Gly Val Ser Ser Asp Phe Val Val Gly Leu Gly Trp Thr Thr Gly Ser  
 35 40 45  
 Ser Asn Ala Ile Thr Tyr Ser Ala Glu Tyr Ser Ala Ser Gly Ser Ser  
 50 55 60  
 Ser Tyr Leu Ala Val Tyr Gly Trp Val Asn Tyr Pro Gly Ala Glu Tyr  
 65 70 75 80  
 Tyr Ile Val Glu Asp Tyr Gly Asp Tyr Asn Pro Cys Ser Ser Ala Thr  
 85 90 95  
 Ser Leu Gly Thr Val Tyr Ser Asp Gly Ser Thr Tyr Gln Val Cys Thr  
 100 105 110  
 Asp Thr Arg Ile Asn Glu Pro Ser Ile Thr Gly Thr Ser Thr Phe Thr  
 115 120 125  
 Gln Tyr Phe Ser Val Arg Glu Ser Thr Arg Thr Ser Gly Thr Val Thr

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130 135 140

Val Ala Asn His Phe Asn Phe Trp Ala Gln His Gly Phe Gly Asn Ser  
 145 150 155 160

Asp Phe Asn Tyr Gln Val Met Ala Val Glu Ala Trp Ser Gly Ala Gly  
 165 170 175

Ser Ala Ser Val Thr Ile Ser Ser  
 180

&lt;210&gt; 2

&lt;211&gt; 185

&lt;212&gt; PRT

&lt;213&gt; Aspergillus tubingensis

&lt;400&gt; 2

Ser Ala Gly Ile Asn Tyr Val Gln Asn Tyr Asn Gln Asn Leu Gly Asp  
 1 5 10 15

Phe Thr Tyr Asp Glu Ser Ala Gly Thr Phe Ser Met Tyr Trp Glu Asp  
 20 25 30

Gly Val Ser Ser Asp Phe Val Val Gly Leu Gly Gly Trp Thr Thr Gly  
 35 40 45

Ser Ser Asn Ala Ile Thr Tyr Ser Ala Glu Tyr Ser Ala Ser Gly Ser  
 50 55 60

Ala Ser Tyr Leu Ala Val Tyr Gly Trp Val Asn Tyr Pro Gln Ala Glu  
 65 70 75 80

Tyr Tyr Ile Val Glu Asp Tyr Gly Asp Tyr Asn Pro Cys Ser Ser Ala  
 85 90 95

Thr Ser Leu Gly Thr Val Tyr Ser Asp Gly Ser Thr Tyr Gln Val Cys  
 100 105 110

Thr Asp Thr Arg Ile Asn Glu Pro Ser Ile Thr Gly Thr Ser Thr Phe  
 115 120 125

Thr Gln Tyr Phe Ser Val Arg Glu Ser Thr Arg Thr Ser Gly Thr Val  
 130 135 140

Thr Val Ala Asn His Phe Asn Phe Trp Ala His His Gly Phe His Asn  
 145 150 155 160

Ser Asp Phe Asn Tyr Gln Val Val Ala Val Glu Ala Trp Ser Gly Ala  
 165 170 175

Gly Ser Ala Ala Val Thr Ile Ser Ser

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180

185

&lt;210&gt; 3

&lt;211&gt; 185

&lt;212&gt; PRT

&lt;213&gt; Bacillus circulans

&lt;400&gt; 3

Ala Ser Thr Asp Tyr Trp Gln Asn Trp Thr Asp Gly Gly Gly Ile Val  
 1 5 10 15

Asn Ala Val Asn Gly Ser Gly Gly Asn Tyr Ser Val Asn Trp Ser Asn  
 20 25 30

Thr Gly Asn Phe Val Val Gly Lys Gly Trp Thr Thr Gly Ser Pro Phe  
 35 40 45

Arg Thr Ile Asn Tyr Asn Ala Gly Val Trp Ala Pro Asn Gly Asn Gly  
 50 55 60

Tyr Leu Thr Leu Tyr Gly Trp Thr Arg Ser Pro Leu Ile Glu Tyr Tyr  
 65 70 75 80

Val Val Asp Ser Trp Gly Thr Tyr Arg Pro Thr Gly Thr Tyr Lys Gly  
 85 90 95

Thr Val Lys Ser Asp Gly Gly Thr Tyr Asp Ile Tyr Thr Thr Thr Arg  
 100 105 110

Tyr Asn Ala Pro Ser Ile Asp Gly Asp Arg Thr Thr Phe Thr Gln Tyr  
 115 120 125

Trp Ser Val Arg Gln Ser Lys Arg Pro Thr Gly Ser Asn Ala Thr Ile  
 130 135 140

Thr Phe Thr Asn His Val Asn Ala Trp Lys Ser His Gly Met Asn Leu  
 145 150 155 160

Gly Ser Asn Trp Ala Tyr Gln Val Met Ala Thr Glu Gly Tyr Gln Ser  
 165 170 175

Ser Gly Ser Ser Asn Val Thr Val Trp  
 180 185

&lt;210&gt; 4

&lt;211&gt; 201

&lt;212&gt; PRT

&lt;213&gt; Bacillus pumilus

&lt;400&gt; 4

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Arg Thr Ile Thr Asn Asn Glu Met Gly Asn His Ser Gly Tyr Asp Tyr  
1 5 10 15

Glu Leu Trp Lys Asp Tyr Gly Asn Thr Ser Met Thr Leu Asn Asn Gly  
20 25 30

Gly Ala Phe Ser Ala Gly Trp Asn Asn Ile Gly Asn Ala Leu Phe Arg  
35 40 45

Lys Gly Lys Lys Phe Asp Ser Thr Arg Thr His His Gln Leu Gly Asn  
50 55 60

Ile Ser Ile Asn Tyr Asn Ala Ser Phe Asn Pro Ser Gly Asn Ser Tyr  
65 70 75 80

Leu Cys Val Tyr Gly Trp Thr Gln Ser Pro Leu Ala Glu Tyr Tyr Ile  
85 90 95

Val Asp Ser Trp Gly Thr Tyr Arg Pro Thr Gly Ala Tyr Lys Gly Ser  
100 105 110

Phe Tyr Ala Asp Gly Gly Thr Tyr Asp Ile Tyr Glu Thr Thr Arg Val  
115 120 125

Asn Gln Pro Ser Ile Ile Gly Ile Ala Thr Phe Lys Gln Tyr Trp Ser  
130 135 140

Val Arg Gln Thr Lys Arg Thr Ser Gly Thr Val Ser Val Ser Ala His  
145 150 155 160

Phe Arg Lys Trp Glu Ser Leu Gly Met Pro Met Gly Lys Met Tyr Glu  
165 170 175

Thr Ala Phe Thr Val Glu Gly Tyr Gln Ser Ser Gly Ser Ala Asn Val  
180 185 190

Met Thr Asn Gln Leu Phe Ile Gly Asn  
195 200

<210> 5

<211> 185

<212> PRT

<213> Bacillus subtilis

<400> 5

Ala Ser Thr Asp Tyr Trp Gln Asn Trp Thr Asp Gly Gly Gly Ile Val  
1 5 10 15

Asn Ala Val Asn Gly Ser Gly Gly Asn Tyr Ser Val Asn Trp Ser Asn  
20 25 30

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Thr Gly Asn Phe Val Val Gly Lys Gly Trp Thr Thr Gly Ser Pro Phe  
           35                          40                          45  
 Arg Thr Ile Asn Tyr Asn Ala Gly Val Trp Ala Pro Asn Gly Asn Gly  
       50                                  55                          60  
 Tyr Leu Thr Leu Tyr Gly Trp Thr Arg Ser Pro Leu Ile Glu Tyr Tyr  
       65                          70                          75                          80  
 Val Val Asp Ser Trp Gly Thr Tyr Arg Pro Thr Gly Thr Tyr Lys Gly  
                           85                          90                          95  
 Thr Val Lys Ser Asp Gly Gly Thr Tyr Asp Ile Tyr Thr Thr Thr Arg  
                   100                          105                          110  
 Tyr Asn Ala Pro Ser Ile Asp Gly Asp Arg Thr Thr Phe Thr Gln Tyr  
           115                          120                          125  
 Trp Ser Val Arg Gln Ser Lys Arg Pro Thr Gly Ser Asn Ala Thr Ile  
       130                          135                          140  
 Thr Phe Ser Asn His Val Asn Ala Trp Lys Ser His Gly Met Asn Leu  
       145                          150                          155                          160  
 Gly Ser Asn Trp Ala Tyr Gln Val Met Ala Thr Glu Gly Tyr Gln Ser  
                   165                          170                          175  
 Ser Gly Ser Ser Asn Val Thr Val Trp  
           180                          185

<210> 6  
 <211> 211  
 <212> PRT  
 <213> Clostridium acetobutylicum

<400> 6  
 Ser Ala Phe Asn Thr Gln Ala Ala Pro Lys Thr Ile Thr Ser Asn Glu  
       1                          5                          10                          15  
 Ile Gly Val Asn Gly Gly Tyr Asp Tyr Glu Leu Trp Lys Asp Tyr Gly  
                   20                          25                          30  
 Asn Thr Ser Met Thr Leu Lys Asn Gly Gly Ala Phe Ser Cys Gln Trp  
           35                          40                          45  
 Ser Asn Ile Gly Asn Ala Leu Phe Arg Lys Gly Lys Lys Phe Asn Asp  
       50                          55                          60  
 Thr Gln Thr Tyr Lys Gln Leu Gly Asn Ile Ser Val Asn Tyr Asn Cys  
       65                          70                          75                          80

Table 1. (continued)		Table 2. (continued)	
Variable	Value	Variable	Value
1. Age	1.00	1. Age	1.00
2. Sex	0.99	2. Sex	0.99
3. Education	0.99	3. Education	0.99
4. Income	0.99	4. Income	0.99
5. Health	0.99	5. Health	0.99
6. Employment	0.99	6. Employment	0.99
7. Social network	0.99	7. Social network	0.99
8. Life satisfaction	0.99	8. Life satisfaction	0.99
9. Mental health	0.99	9. Mental health	0.99
10. Physical health	0.99	10. Physical health	0.99
11. Quality of life	0.99	11. Quality of life	0.99
12. Life expectancy	0.99	12. Life expectancy	0.99
13. Health status	0.99	13. Health status	0.99
14. Life satisfaction	0.99	14. Life satisfaction	0.99
15. Mental health	0.99	15. Mental health	0.99
16. Physical health	0.99	16. Physical health	0.99
17. Quality of life	0.99	17. Quality of life	0.99
18. Life expectancy	0.99	18. Life expectancy	0.99
19. Health status	0.99	19. Health status	0.99
20. Life satisfaction	0.99	20. Life satisfaction	0.99
21. Mental health	0.99	21. Mental health	0.99
22. Physical health	0.99	22. Physical health	0.99
23. Quality of life	0.99	23. Quality of life	0.99
24. Life expectancy	0.99	24. Life expectancy	0.99
25. Health status	0.99	25. Health status	0.99
26. Life satisfaction	0.99	26. Life satisfaction	0.99
27. Mental health	0.99	27. Mental health	0.99
28. Physical health	0.99	28. Physical health	0.99
29. Quality of life	0.99	29. Quality of life	0.99
30. Life expectancy	0.99	30. Life expectancy	0.99
31. Health status	0.99	31. Health status	0.99
32. Life satisfaction	0.99	32. Life satisfaction	0.99
33. Mental health	0.99	33. Mental health	0.99
34. Physical health	0.99	34. Physical health	0.99
35. Quality of life	0.99	35. Quality of life	0.99
36. Life expectancy	0.99	36. Life expectancy	0.99
37. Health status	0.99	37. Health status	0.99
38. Life satisfaction	0.99	38. Life satisfaction	0.99
39. Mental health	0.99	39. Mental health	0.99
40. Physical health	0.99	40. Physical health	0.99
41. Quality of life	0.99	41. Quality of life	0.99
42. Life expectancy	0.99	42. Life expectancy	0.99
43. Health status	0.99	43. Health status	0.99
44. Life satisfaction	0.99	44. Life satisfaction	0.99
45. Mental health	0.99	45. Mental health	0.99
46. Physical health	0.99	46. Physical health	0.99
47. Quality of life	0.99	47. Quality of life	0.99
48. Life expectancy	0.99	48. Life expectancy	0.99
49. Health status	0.99	49. Health status	0.99
50. Life satisfaction	0.99	50. Life satisfaction	0.99
51. Mental health	0.99	51. Mental health	0.99
52. Physical health	0.99	52. Physical health	0.99
53. Quality of life	0.99	53. Quality of life	0.99
54. Life expectancy	0.99	54. Life expectancy	0.99
55. Health status	0.99	55. Health status	0.99
56. Life satisfaction	0.99	56. Life satisfaction	0.99
57. Mental health	0.99	57. Mental health	0.99
58. Physical health	0.99	58. Physical health	0.99
59. Quality of life	0.99	59. Quality of life	0.99
60. Life expectancy	0.99	60. Life expectancy	0.99
61. Health status	0.99	61. Health status	0.99
62. Life satisfaction	0.99	62. Life satisfaction	0.99
63. Mental health	0.99	63. Mental health	0.99
64. Physical health	0.99	64. Physical health	0.99
65. Quality of life	0.99	65. Quality of life	0.99
66. Life expectancy	0.99	66. Life expectancy	0.99
67. Health status	0.99	67. Health status	0.99
68. Life satisfaction	0.99	68. Life satisfaction	0.99
69. Mental health	0.99	69. Mental health	0.99
70. Physical health	0.99	70. Physical health	0.99
71. Quality of life	0.99	71. Quality of life	0.99
72. Life expectancy	0.99	72. Life expectancy	0.99
73. Health status	0.99	73. Health status	0.99
74. Life satisfaction	0.99	74. Life satisfaction	0.99
75. Mental health	0.99	75. Mental health	0.99
76. Physical health	0.99	76. Physical health	0.99
77. Quality of life	0.99	77. Quality of life	0.99
78. Life expectancy	0.99	78. Life expectancy	0.99
79. Health status	0.99	79. Health status	0.99
80. Life satisfaction	0.99	80. Life satisfaction	0.99
81. Mental health	0.99	81. Mental health	0.99
82. Physical health	0.99	82. Physical health	0.99

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Ile Val Glu Ser Trp Gly Ser Trp Arg Pro Pro Gly Ala Thr Pro Lys  
 100 105 110

Gly Thr Ile Thr Gln Trp Met Ala Gly Thr Tyr Glu Ile Tyr Glu Thr  
 115 120 125

Thr Arg Val Asn Gln Pro Ser Ile Asp Gly Thr Ala Thr Phe Gln Gln  
 130 135 140

Tyr Trp Ser Val Arg Thr Ser Lys Arg Thr Ser Gly Thr Ile Ser Val  
 145 150 155 160

Thr Glu His Phe Lys Gln Trp Glu Arg Met Gly Met Arg Met Gly Lys  
 165 170 175

Met Tyr Glu Val Ala Leu Thr Val Glu Gly Tyr Gln Ser Ser Gly Tyr  
 180 185 190

Ala Asn Val Tyr Lys Asn Glu Ile Arg Ile Gly Ala Asn Pro  
 195 200 205

&lt;210&gt; 8

&lt;211&gt; 211

&lt;212&gt; PRT

&lt;213&gt; Ruminococcus flavefaciens

&lt;400&gt; 8

Ser Ala Ala Asp Gln Gln Thr Arg Gly Asn Val Gly Gly Tyr Asp Tyr  
 1 5 10 15

Glu Met Trp Asn Gln Asn Gly Gln Gly Gln Ala Ser Met Asn Pro Gly  
 20 25 30

Ala Gly Ser Phe Thr Cys Ser Trp Ser Asn Ile Glu Asn Phe Leu Ala  
 35 40 45

Arg Met Gly Lys Asn Tyr Asp Ser Gln Lys Lys Asn Tyr Lys Ala Phe  
 50 55 60

Gly Asn Ile Val Leu Thr Tyr Asp Val Glu Tyr Thr Pro Arg Gly Asn  
 65 70 75 80

Ser Tyr Met Cys Val Tyr Gly Trp Thr Arg Asn Pro Leu Met Glu Tyr  
 85 90 95

Tyr Ile Val Glu Gly Trp Gly Asp Trp Arg Pro Pro Gly Asn Asp Gly  
 100 105 110

Glu Val Lys Gly Thr Val Ser Ala Asn Gly Asn Thr Tyr Asp Ile Arg  
 115 120 125

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Lys Thr Met Arg Tyr Asn Gln Pro Ser Leu Asp Gly Thr Ala Thr Phe  
130 135 140

Pro Gln Tyr Trp Ser Val Arg Gln Thr Ser Gly Ser Ala Asn Asn Gln  
145 150 155 160

Thr Asn Tyr Met Lys Gly Thr Ile Asp Val Ser Lys His Phe Asp Ala  
165 170 175

Trp Ser Ala Ala Gly Leu Asp Met Ser Gly Thr Leu Tyr Glu Val Ser  
180 185 190

Leu Asn Ile Glu Gly Tyr Arg Ser Asn Gly Ser Ala Asn Val Lys Ser  
195 200 205

Val Ser Val  
210

<210> 9

<211> 197

<212> PRT

<213> Schizophyllum commune

<400> 9

Ser Gly Thr Pro Ser Ser Thr Gly Thr Asp Gly Gly Tyr Tyr Tyr Ser  
1 5 10 15

Trp Trp Thr Asp Gly Ala Gly Asp Ala Thr Tyr Gln Asn Asn Gly Gly  
20 25 30

Gly Ser Tyr Thr Leu Thr Trp Ser Gly Asn Asn Gly Asn Leu Val Gly  
35 40 45

Gly Lys Gly Trp Asn Pro Gly Ala Ala Ser Arg Ser Ile Ser Tyr Ser  
50 55 60

Gly Thr Tyr Gln Pro Asn Gly Asn Ser Tyr Leu Ser Val Tyr Gly Trp  
65 70 75 80

Thr Arg Ser Ser Leu Ile Glu Tyr Tyr Ile Val Glu Ser Tyr Gly Ser  
85 90 95

Tyr Asp Pro Ser Ser Ala Ala Ser His Lys Gly Ser Val Thr Cys Asn  
100 105 110

Gly Ala Thr Tyr Asp Ile Leu Ser Thr Trp Arg Tyr Asn Ala Pro Ser  
115 120 125

Ile Asp Gly Thr Gln Thr Phe Glu Gln Phe Trp Ser Val Arg Asn Pro  
130 135 140



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Lys Lys Ala Pro Gly Gly Ser Ile Ser Gly Thr Val Asp Val Gln Cys  
 145 150 155 160

His Phe Asp Ala Trp Lys Gly Leu Gly Met Asn Leu Gly Ser Glu His  
 165 170 175

Asn Tyr Gln Ile Val Ala Thr Glu Gly Tyr Gln Ser Ser Gly Thr Ala  
 180 185 190

Thr Ile Thr Val Thr  
 195

<210> 10

<211> 191

<212> PRT

<213> Streptomyces lividans

<400> 10

Asp Thr Val Val Thr Thr Asn Gln Glu Gly Thr Asn Asn Gly Tyr Tyr  
 1 5 10 15

Tyr Ser Phe Trp Thr Asp Ser Gln Gly Thr Val Ser Met Asn Met Gly  
 20 25 30

Ser Gly Gly Gln Tyr Ser Thr Ser Trp Arg Asn Thr Gly Asn Phe Val  
 35 40 45

Ala Gly Lys Gly Trp Ala Asn Gly Gly Arg Arg Thr Val Gln Tyr Ser  
 50 55 60

Gly Ser Phe Asn Pro Ser Gly Asn Ala Tyr Leu Ala Leu Tyr Gly Trp  
 65 70 75 80

Thr Ser Asn Pro Leu Val Glu Tyr Tyr Ile Val Asp Asn Trp Gly Thr  
 85 90 95

Tyr Arg Pro Thr Gly Glu Tyr Lys Gly Thr Val Thr Ser Asp Gly Gly  
 100 105 110

Thr Tyr Asp Ile Tyr Lys Thr Thr Arg Val Asn Lys Pro Ser Val Glu  
 115 120 125

Gly Thr Arg Thr Phe Asp Gln Tyr Trp Ser Val Arg Gln Ser Lys Arg  
 130 135 140

Thr Gly Gly Thr Ile Thr Thr Gly Asn His Phe Asp Ala Trp Ala Arg  
 145 150 155 160

Ala Gly Met Pro Leu Gly Asn Phe Ser Tyr Tyr Met Ile Asn Ala Thr  
 165 170 175

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Glu Gly Tyr Gln Ser Ser Gly Thr Ser Ser Ile Asn Val Gly Gly  
 180 185 190

<210> 11  
 <211> 191  
 <212> PRT  
 <213> Streptomyces lividans

<400> 11  
 Ala Thr Thr Ile Thr Thr Asn Gln Thr Gly Thr Asp Gly Met Tyr Tyr  
 1 5 10 15  
 Ser Phe Trp Thr Asp Gly Gly Gly Ser Val Ser Met Thr Leu Asn Gly  
 20 25 30  
 Gly Gly Ser Tyr Ser Thr Gln Trp Thr Asn Cys Gly Asn Phe Val Ala  
 35 40 45  
 Gly Lys Gly Trp Ser Thr Gly Asp Gly Asn Val Arg Tyr Asn Gly Tyr  
 50 55 60  
 Phe Asn Pro Val Gly Asn Gly Tyr Gly Cys Leu Tyr Gly Trp Thr Ser  
 65 70 75 80  
 Asn Pro Leu Val Glu Tyr Tyr Ile Val Asp Asn Trp Gly Ser Tyr Arg  
 85 90 95  
 Pro Thr Gly Thr Tyr Lys Gly Thr Val Ser Ser Asp Gly Gly Thr Tyr  
 100 105 110  
 Asp Ile Tyr Gln Thr Thr Arg Tyr Asn Ala Pro Ser Val Glu Gly Thr  
 115 120 125  
 Lys Thr Phe Gln Gln Tyr Trp Ser Val Arg Gln Ser Lys Val Thr Ser  
 130 135 140  
 Gly Ser Gly Thr Ile Thr Thr Gly Asn His Phe Asp Ala Trp Ala Arg  
 145 150 155 160  
 Ala Gly Met Asn Met Gly Gln Phe Arg Tyr Tyr Met Ile Asn Ala Thr  
 165 170 175  
 Glu Gly Tyr Gln Ser Ser Gly Ser Ser Asn Ile Thr Val Ser Gly  
 180 185 190

<210> 12  
 <211> 189  
 <212> PRT  
 <213> Streptomyces sp.

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&lt;400&gt; 12

Ala Thr Thr Ile Thr Asn Glu Thr Gly Tyr Asp Gly Met Tyr Tyr Ser  
 1 5 10 15

Phe Trp Thr Asp Gly Gly Gly Ser Val Ser Met Thr Leu Asn Gly Gly  
 20 25 30

Gly Ser Tyr Ser Thr Arg Trp Thr Asn Cys Gly Asn Phe Val Ala Gly  
 35 40 45

Lys Gly Trp Ala Asn Gly Gly Arg Arg Thr Val Arg Tyr Thr Gly Trp  
 50 55 60

Phe Asn Pro Ser Gly Asn Gly Tyr Gly Cys Leu Tyr Gly Trp Thr Ser  
 65 70 75 80

Asn Pro Leu Val Glu Tyr Tyr Ile Val Asp Asn Trp Gly Ser Tyr Arg  
 85 90 95

Pro Thr Gly Glu Thr Arg Gly Thr Val His Ser Asp Gly Gly Thr Tyr  
 100 105 110

Asp Ile Tyr Lys Thr Thr Arg Tyr Asn Ala Pro Ser Val Glu Ala Pro  
 115 120 125

Ala Ala Phe Asp Gln Tyr Trp Ser Val Arg Gln Ser Lys Val Thr Ser  
 130 135 140

Gly Thr Ile Thr Thr Gly Asn His Phe Asp Ala Trp Ala Arg Ala Gly  
 145 150 155 160

Met Asn Met Gly Asn Phe Arg Tyr Tyr Met Ile Asn Ala Thr Glu Gly  
 165 170 175

Tyr Gln Ser Ser Gly Ser Ser Thr Ile Thr Val Ser Gly  
 180 185

&lt;210&gt; 13

&lt;211&gt; 189

&lt;212&gt; PRT

&lt;213&gt; Thermomonospora fusca

&lt;400&gt; 13

Ala Val Thr Ser Asn Glu Thr Gly Tyr His Asp Gly Tyr Phe Tyr Ser  
 1 5 10 15

Phe Trp Thr Asp Ala Pro Gly Thr Val Ser Met Glu Leu Gly Pro Gly  
 20 25 30

Gly Asn Tyr Ser Thr Ser Trp Arg Asn Thr Gly Asn Phe Val Ala Gly  
 35 40 45

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Lys Gly Trp Ala Thr Gly Gly Arg Arg Thr Val Thr Tyr Ser Ala Ser  
50 55 60

Phe Asn Pro Ser Gly Asn Ala Tyr Leu Thr Leu Tyr Gly Trp Thr Arg  
65 70 75 80

Asn Pro Leu Val Glu Tyr Tyr Ile Val Glu Ser Trp Gly Thr Tyr Arg  
85 90 95

Pro Thr Gly Thr Tyr Met Gly Thr Val Thr Thr Asp Gly Gly Thr Tyr  
100 105 110

Asp Ile Tyr Lys Thr Thr Arg Tyr Asn Ala Pro Ser Ile Glu Gly Thr  
115 120 125

Arg Thr Phe Asp Gln Tyr Trp Ser Val Arg Gln Ser Lys Arg Thr Ser  
130 135 140

Gly Thr Ile Thr Ala Gly Asn His Phe Asp Ala Trp Ala Arg His Gly  
145 150 155 160

Met His Leu Gly Thr His Asp Tyr Met Ile Met Ala Thr Glu Gly Tyr  
165 170 175

Gln Ser Ser Gly Ser Ser Asn Val Thr Leu Gly Thr Ser  
180 185

<210> 14

<211> 190

<212> PRT

<213> Trichoderma harzianum

<400> 14

Gln Thr Ile Gly Pro Gly Thr Gly Tyr Ser Asn Gly Tyr Tyr Tyr Ser  
1 5 10 15

Tyr Trp Asn Asp Gly His Ala Gly Val Thr Tyr Thr Asn Gly Gly Gly  
20 25 30

Gly Ser Phe Thr Val Asn Trp Ser Asn Ser Gly Asn Phe Val Gly Gly  
35 40 45

Lys Gly Trp Gln Pro Gly Thr Lys Asn Lys Val Ile Asn Phe Ser Gly  
50 55 60

Ser Tyr Asn Pro Asn Gly Asn Ser Tyr Leu Ser Ile Tyr Gly Trp Ser  
65 70 75 80

Arg Asn Pro Leu Ile Glu Tyr Tyr Ile Val Glu Asn Phe Gly Thr Tyr  
85 90 95

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Asn Pro Ser Thr Gly Ala Thr Lys Leu Gly Glu Val Thr Ser Asp Gly  
                   100                  105                  110  
 Ser Val Tyr Asp Ile Tyr Arg Thr Gln Arg Val Asn Gln Pro Ser Ile  
                   115                  120                  125  
 Ile Gly Thr Ala Thr Phe Tyr Gln Tyr Trp Ser Val Arg Arg Asn His  
                   130                  135                  140  
 Arg Ser Ser Gly Ser Val Asn Thr Ala Asn His Phe Asn Ala Trp Ala  
                   145                  150                  155                  160  
 Ser His Gly Leu Thr Leu Gly Thr Met Asp Tyr Gln Ile Val Ala Val  
                   165                  170                  175  
 Glu Gly Tyr Phe Ser Ser Gly Ser Ala Ser Ile Thr Val Ser  
                   180                  185                  190

<210> 15  
 <211> 178  
 <212> PRT  
 <213> Trichoderma reesei

<400> 15  
 Ala Ser Ile Asn Tyr Asp Gln Asn Tyr Gln Thr Gly Gly Gln Val Ser  
   1                  5                  10                  15  
 Tyr Ser Pro Ser Asn Thr Gly Phe Ser Val Asn Trp Asn Thr Gln Asp  
                   20                  25                  30  
 Asp Phe Val Val Gly Val Gly Trp Thr Thr Gly Ser Ser Ala Pro Ile  
                   35                  40                  45  
 Asn Phe Gly Gly Ser Phe Ser Val Asn Ser Gly Thr Gly Leu Leu Ser  
                   50                  55                  60  
 Val Tyr Gly Trp Ser Thr Asn Pro Leu Val Glu Tyr Tyr Ile Met Glu  
   65                  70                  75                  80  
 Asp Asn His Asn Tyr Pro Ala Gln Gly Thr Val Lys Gly Thr Val Thr  
                   85                  90                  95  
 Ser Asp Gly Ala Thr Tyr Thr Ile Trp Glu Asn Thr Arg Val Asn Glu  
                   100                  105                  110  
 Pro Ser Ile Gln Gly Thr Ala Thr Phe Asn Gln Tyr Ile Ser Val Arg  
                   115                  120                  125  
 Asn Ser Pro Arg Thr Ser Gly Thr Val Thr Val Gln Asn His Phe Asn  
                   130                  135                  140

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Trp Ala Ser Leu Gly Leu His Leu Gly Gln Met Met Asn Tyr Gln Val  
 145 150 155 160

Val Ala Val Glu Gly Trp Gly Gly Ser Gly Ser Ala Ser Gln Ser Val  
 165 170 175

Ser Asn

<210> 16

<211> 190

<212> PRT

<213> Trichoderma reesei

<400> 16

Gln Thr Ile Gln Pro Gly Thr Gly Tyr Asn Asn Gly Tyr Phe Tyr Ser  
 1 5 10 15

Tyr Trp Asn Asp Gly His Gly Gly Val Thr Tyr Thr Asn Gly Pro Gly  
 20 25 30

Gly Gln Phe Ser Val Asn Trp Ser Asn Ser Gly Asn Phe Val Gly Gly  
 35 40 45

Lys Gly Trp Gln Pro Gly Thr Lys Asn Lys Val Ile Asn Phe Ser Gly  
 50 55 60

Ser Tyr Asn Pro Asn Gly Asn Ser Tyr Leu Ser Val Tyr Gly Trp Ser  
 65 70 75 80

Arg Asn Pro Leu Ile Glu Tyr Tyr Ile Val Glu Asn Phe Gly Thr Tyr  
 85 90 95

Asn Pro Ser Thr Gly Ala Thr Lys Leu Gly Glu Val Thr Ser Asp Gly  
 100 105 110

Ser Val Tyr Asp Ile Tyr Arg Thr Gln Arg Val Asn Gln Pro Ser Ile  
 115 120 125

Ile Gly Thr Ala Thr Phe Tyr Gln Tyr Trp Ser Val Arg Arg Asn His  
 130 135 140

Arg Ser Ser Gly Ser Val Asn Thr Ala Asn His Phe Asn Ala Trp Ala  
 145 150 155 160

Gln Gln Gly Leu Thr Leu Gly Thr Met Asp Tyr Gln Ile Val Ala Val  
 165 170 175

Glu Gly Tyr Phe Ser Ser Gly Ser Ala Ser Ile Thr Val Ser  
 180 185 190

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<210> 17  
 <211> 190  
 <212> PRT  
 <213> Trichoderma viride

<400> 17  
 Gln Thr Ile Gln Pro Gly Thr Gly Phe Asn Asn Gly Tyr Phe Tyr Ser  
 1 5 10 15  
 Tyr Trp Asn Asp Gly His Gly Gly Val Thr Tyr Thr Asn Gly Pro Gly  
 20 25 30  
 Gly Gln Phe Ser Val Asn Trp Ser Asn Ser Gly Asn Phe Val Gly Gly  
 35 40 45  
 Lys Gly Trp Gln Pro Gly Thr Lys Asn Lys Val Ile Asn Phe Ser Gly  
 50 55 60  
 Ser Tyr Asn Pro Asn Gly Asn Ser Tyr Leu Ser Val Tyr Gly Trp Ser  
 65 70 75 80  
 Arg Asn Pro Leu Ile Glu Tyr Tyr Ile Val Glu Asn Phe Gly Thr Tyr  
 85 90 95  
 Asn Pro Ser Thr Gly Ala Thr Lys Leu Gly Glu Val Thr Ser Asp Gly  
 100 105 110  
 Ser Val Tyr Asp Ile Tyr Arg Thr Gln Arg Val Asn Gln Pro Ser Ile  
 115 120 125  
 Ile Gly Thr Ala Thr Phe Tyr Gln Tyr Trp Ser Val Arg Arg Thr His  
 130 135 140  
 Arg Ser Ser Gly Ser Val Asn Thr Ala Asn His Phe Asn Ala Trp Ala  
 145 150 155 160  
 Gln Gln Gly Leu Thr Leu Gly Thr Met Asp Tyr Gln Ile Val Ala Val  
 165 170 175  
 Glu Gly Tyr Phe Ser Ser Gly Ser Ala Ser Ile Thr Val Ser  
 180 185 190

<210> 18  
 <211> 596  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: TrX synthetic  
 sequence

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<400> 18  
ctagctaagg aggctgcaga tgcaaacaat acaaccagga accgggttaca acaacgggta 60  
cttttacagc tattggaacg atggccatgg tgggtgttacc tatacaaacg ggcccggagg 120  
ccaatttagc gtcaattggg ttaactccgg aaacttcgta ggtggaaaag gttggcaacc 180  
cgggaccaa aataagggtga tcaacttctc tggatcttat aatccgaatg ggaattcata 240  
cttaagcgtc tatggctggg ctagaaaccc actgattgaa tattacattg tcgaaaattt 300  
cggtacctac aatccgagta ccggcgccac aaaattaggc gaagtcacta gtgatggatc 360  
cgtatatgat atctaccgta cccaacgcgt taatcagcca tcgatcattg gaaccgccac 420  
cttttatcag tactggagtg ttagacgtaa tcacggagc tccgggttcgg ttaatactgc 480  
gaatcacttt aatgcatggg cacagcaagg gttaacccta ggtacaatgg attatcaaat 540  
cgtagcggtg gaaggctact tctcgagtgg ttccgctagt attacagtga gctaaa 596

<210> 19  
<211> 40  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:Trx-110C  
Synthetic Sequence

<400> 19  
atatacggat ccatacacaag tgacttcgcc taattttgtg 40

<210> 20  
<211> 68  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:Tx-110C-2

<400> 20  
gcgccacaaa attaggcgaa gtcacttgtg atggatccgt atatgatata taccgtaccc 60  
aacgcgtt 68

<210> 21  
<211> 42  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:Tx-103b

<400> 21  
aatcagccat cgatcattgg aaccgccacc ttttatcagt ac 42

<210> 22



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<211> 54  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:XyTv-109  
Synthetic sequence

<400> 22  
ggtaggcgggtt ccaatgatcg atggctgatt aacgcgttgg gtacggtaga tacc 54

<210> 23  
<211> 48  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:Tx-108b

<400> 23  
cgaaccggag ctccgatgat tacgtctaac actccagtag tgataaaa 48

<210> 24  
<211> 52  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:Tx-154C  
Synthetic sequence

<400> 24  
ctagggttaa cccttgatgat gccagggcat taaagtggca tgcagtatta ac 52

<210> 25  
<211> 84  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:Tx-154C-2

<400> 25  
tggagtgtta gacgtaatca tcggagctcc ggctcgggtta atactgcatg ccactttaat 60  
gcctgggcac agcaagggtt aacc 84

<210> 26  
<211> 34

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<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Tx-162H-3

<400> 26

ccacttcaat gcatgggcac agcacgggtt aacc

34

<210> 27

<211> 42

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:TrX-162H-4

<400> 27

ctagggttaa cccgtgctgt gcccatgcat tgaagtggca tg

42

<210> 28

<211> 58

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:XyTv-101

<400> 28

tcgacaattt cggtacctac aatccgagta cggcgccac aaaattaggc gaagtcac

58

<210> 29

<211> 52

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:XyTv-102

<400> 29

tagtgatgga tccgtatatg atatctaccg taccacacgc gttaatcagc ca

52

<210> 30

<211> 60

<212> DNA

<213> Artificial Sequence

<220>

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<223> Description of Artificial Sequence:TrX-103

<400> 30

tcgatcattg gaaccgccac cttttatcag tactggagtg ttagacgtaa tcatcggagc 60

<210> 31

<211> 69

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:XyTv-104

<400> 31

tccgggtcgg ttaatactgc gaatcacttt aatgcatggg cacagcaagg gttaacccta 60  
ggtacaatg 69

<210> 32

<211> 67

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:XyTv-105

<400> 32

gattatcaaa tcgtagcggg ggaaggctac ttctcgagtg gttccgctag tattacagtg 60  
agctaaa 67

<210> 33

<211> 53

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:XyTv-106  
synthetic sequence

<400> 33

gatcttttagc tcaactgtaat actagcggaa ccaactcgaga agtagccttc cac 53

<210> 34

<211> 66

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:XyTv-107

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<400> 34  
cgctacgatt tgataatcca ttgtacctag ggtaaccct tgctgtgcc atgcattaaa 60  
gtgatt 66

<210> 35  
<211> 60  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:TrX-108

<400> 35  
cgcagtatta accgaaccgg agctccgatg attacgtcta acactccagt actgataaaa 60

<210> 36  
<211> 73  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:XyTv-110

<400> 36  
atatacggat ccatcactag tgacttcgcc taattttgtg ggcgcggtac tcggattgta 60  
ggtaccgaaa ttg 73

<210> 37  
<211> 76  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:TrX-1

<400> 37  
ctagctaagg aggctgcaga tgcaaacaat acaaccagga accgggttaca acaacggtta 60  
cttttacagc tattgg 76

<210> 38  
<211> 78  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:XyTv-2

<400> 38

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aacgatggcc atggtggtgt tacctataca aacgggcccc gagggccaatt tagcgtcaat 60  
tgggtctaact ccggaaac 78

&lt;210&gt; 39

&lt;211&gt; 78

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence:TrX-3

&lt;400&gt; 39

ttcgtaggtg gaaaagggtg gcaacccggg accaaaaata aggtgatcaa cttctctgga 60  
tcttataatc cgaatggg 78

&lt;210&gt; 40

&lt;211&gt; 74

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence:XyTv-4

&lt;400&gt; 40

aattcatact taagcgtcta tggctggtct agaaaccac tgattgaata ttacattgtc 60  
gaaaatttcg gtac 74

&lt;210&gt; 41

&lt;211&gt; 85

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence:XyTv-5

&lt;400&gt; 41

gcaaattttc gacaatgtaa tattcaatca gtgggtttct agaccagcca tagacgotta 60  
agtatgaatt cccattcgga ttata 85

&lt;210&gt; 42

&lt;211&gt; 78

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:Trx-6Synthetic  
sequence

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<400> 42  
agatccagag aagttgatca ccttattttt ggtcccgggt tgccaacctt ttccacctac 60  
gaagtttccg gagttaga 78

<210> 43  
<211> 84  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:XyTv-7  
Synthetic sequence

<400> 43  
ccaattgacg ctaaattggc ctccggggccc gtttgtatag gtaacaccac catggccatc 60  
gttccaatag ctgtaaaagt aacc 84

<210> 44  
<211> 51  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:TrX-8 synthetic  
sequence

<400> 44  
gttggtgtaa ccggttcctg gttgtattgt ttgcatctgc agcctcctta g 51

<210> 45  
<211> 40  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:Tx-108C  
synthetic sequence

<400> 45  
atatacggat ccatcactag tgcattcgcc taattttgtg 40

<210> 46  
<211> 68  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:Tx-108C-2

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<400> 46  
gcgccacaaa attaggcgaa tgcactagtg atggatccgt atatgatatc taccgtaccc 60  
aacgcgtt 68

<210> 47  
<211> 52  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:Tx-158C-162H  
synthetic sequence

<400> 47  
ctagggttaa cccgtgtgat gccagcaat taaagtgatt tgcagtatta ac 52

<210> 48  
<211> 84  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:Tx-158C-162H-2

<400> 48  
tggagtgtta gacgtaatca tcggagctcc gggtcgggta atactgcaaa tcactttaat 60  
tgctgggcac agcacgggtt aacc 84

<210> 49  
<211> 40  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:Tx-108C-110C  
synthetic sequence

<400> 49  
atatacggat ccatcacaag tgcattcgcc taattttgtg 40

<210> 50  
<211> 68  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:Tx-108C-110C-2  
synthetic sequence

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<400> 50  
 gcgccacaaa attaggcgaa tgcacttgat atggatccgt atatgatatt taccgtaccc 60  
 aacgcgtt 68

<210> 51  
 <211> 52  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial  
 Sequence:Tx-154C-158C-152H synthetic sequence

<400> 51  
 ctagggttaa cccgtgtgat gccagcaat taaagtggca tgcagtatta ac 52

<210> 52  
 <211> 84  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial  
 Sequence:Tx-154C-158C-162H-2

<400> 52  
 tggagtgtta gacgtaataca tcggagctcc ggctcggtta atactgcatg ccactttaat 60  
 tgctgggcac agcacgggtt aacc 84

<210> 53  
 <211> 190  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:TrX amino acid  
 sequence

<400> 53  
 Gln Thr Ile Gln Pro Gly Thr Gly Tyr Asn Asn Gly Tyr Phe Tyr Ser  
 1 5 10 15  
 Tyr Trp Asn Asp Gly His Gly Gly Val Thr Tyr Thr Asn Gly Pro Gly  
 20 25 30  
 Gly Gln Phe Ser Val Asn Trp Ser Asn Ser Gly Asn Phe Val Gly Gly  
 35 40 45  
 Lys Gly Trp Gln Pro Gly Thr Lys Asn Lys Val Ile Asn Phe Ser Gly



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50                      55                      60  
 Ser Tyr Asn Pro Asn Gly Asn Ser Tyr Leu Ser Val Tyr Gly Trp Ser  
 65                      70                      75                      80  
 Arg Asn Pro Leu Ile Glu Tyr Tyr Ile Val Glu Asn Phe Gly Thr Tyr  
                     85                      90                      95  
 Asn Pro Ser Thr Gly Ala Thr Lys Leu Gly Glu Val Thr Ser Asp Gly  
                     100                      105                      110  
 Ser Val Tyr Asp Ile Tyr Arg Thr Gln Arg Val Asn Gln Pro Ser Ile  
                     115                      120                      125  
 Ile Gly Thr Ala Thr Phe Tyr Gln Tyr Trp Ser Val Arg Arg Asn His  
                     130                      135                      140  
 Arg Ser Ser Gly Ser Val Asn Thr Ala Asn His Phe Asn Ala Trp Ala  
 145                      150                      155                      160  
 Gln Gln Gly Leu Thr Leu Gly Thr Met Asp Tyr Gln Ile Val Ala Val  
                     165                      170                      175  
 Glu Gly Tyr Phe Ser Ser Gly Ser Ala Ser Ile Thr Val Ser  
                     180                      185                      190

<210> 54  
 <211> 198  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:TrX-DS1  
          cassette

<400> 54  
 gcgccacaaa attagggcga gtcacttgtg atggatccgt atatgatata taccgtaccc 60  
 aacgcgttaa tcagccatcg atcattggaa ccgccacctt ttatcagtac tggagtgtta 120  
 gacgtaataca tcggagctcc gggttcggta atactgcatg ccactttaat gcctgggcac 180  
 agcaagggtt aaccctag                      198

<210> 55  
 <211> 67  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:TrX-DS1  
          cassette aa

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&lt;400&gt; 55

Gly Ala Thr Lys Leu Gly Glu Val Thr Cys Asp Gly Ser Val Tyr Asp  
 1 5 10 15

Ile Tyr Arg Thr Gln Arg Val Asn Gln Pro Ser Ile Ile Gly Thr Ala  
 20 25 30

Thr Phe Tyr Gln Tyr Trp Ser Val Arg Arg Asn His Arg Ser Ser Gly  
 35 40 45

Ser Val Asn Thr Ala Cys His Phe Asn Ala Trp Ala Gln Gln Gly Leu  
 50 55 60

Thr Leu Gly  
 65

&lt;210&gt; 56

&lt;211&gt; 15

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:TrX-162H-DS1  
 cassette aa

&lt;400&gt; 56

Ala Cys His Phe Asn Ala Trp Ala Gln His Gly Leu Thr Leu Gly  
 1 5 10 15

&lt;210&gt; 57

&lt;211&gt; 198

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:TrX-162H-DS2  
 cassette

&lt;400&gt; 57

gcgccacaaa attaggcgaa tgcactagt atggatccgt atatgatc taccgtaccc 60  
 aacgcgttaa tcagccatcg atcattggaa ccgccacctt ttatcagtac tggagtgtta 120  
 gacgtaatca tcggagctcc ggttcgggta atactgcaaa tcactttaat tgctgggcac 180  
 agcacggggtt aaccctag 198

&lt;210&gt; 58

&lt;211&gt; 67

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

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&lt;220&gt;

<223> Description of Artificial Sequence:TrX-162H-DS2  
cassette aa

&lt;400&gt; 58

Gly Ala Thr Lys Leu Gly Glu Cys Thr Ser Asp Ser Ser Val Tyr Asp  
1 5 10 15

Ile Tyr Arg Thr Gln Arg Val Asn Gln Pro Ser Ile Ile Gly Thr Ala  
20 25 30

Thr Phe Tyr Gln Tyr Trp Ser Val Arg Arg Asn His Arg Ser Ser Gly  
35 40 45

Ser Val Asn Thr Ala Asn His Phe Asn Cys Trp Ala Gln His Gly Leu  
50 55 60

Thr Leu Gly  
65

&lt;210&gt; 59

&lt;211&gt; 198

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:TrX-162H-DS4  
cassette

&lt;400&gt; 59

gcgccacaaa attaggcgaa tgcacttggtg atggatccgt atatgatata taccgtaccc 60  
aacgcgttaa tcagccatcg atcattggaa ccgccacctt ttatcagtac tggagtgtta 120  
gacgtaataca tcggagctcc ggttcggtta atactgcatg ccactttaat tgctggggcac 180  
agcacgggtt aaccctag 198

&lt;210&gt; 60

&lt;211&gt; 67

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:TrX-162H-DS4  
cassette aa

&lt;400&gt; 60

Gly Ala Thr Lys Leu Gly Glu Cys Thr Cys Asp Gly Ser Val Tyr Asp  
1 5 10 15

Ile Tyr Arg Thr Gln Arg Val Asn Gln Pro Ser Ile Ile Gly Thr Ala  
20 25 30



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Thr Phe Tyr Gln Tyr Trp Ser Val Arg Arg Asn His Arg Ser Ser Gly  
35 40 45

Ser Val Asn Thr Ala Cys His Phe Asn Cys Trp Ala Gln His Gly Leu  
50 55 60

Thr Leu Gly  
65

<210> 61

<211> 42

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: TrX-162H-DS1  
cassette

<400> 61

catgccactt caatgcatgg gcacagcacg gggttaaccct ag

42